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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/608,067

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7590

01/27/2005

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EXAMINER

CRUZ, MAGDA

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/608,067

Applicant(s)

ARAI ET AL.

Examiner

Magda Cruz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 39-41 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 9-16, 19, 22-28, 31 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7, 8, 17, 18, 20, 21, 29, 30, 32 and 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 and 08 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

RODNEY FULLER
PRIMARY EXAMINER

R. Fuller

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/26/2004.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “the color synthesizing means on a screen from *slantly above or slantly below*” (claim 1) and “all color components out of the image light irradiated on the screen are P-polarized to the surface of the screen on which the image light is irradiated” (claim 39) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

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be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Marked-up Drawings" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 6, 11, 13-19, 24, 26-28, 31, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Suzuki et al.

Sato et al. (US Patent Number 5,097,323) discloses a rear projection display device (Figure 5) comprising a light source lamp (7), color splitting means (111a, 111b, 112a and 115) for splitting light emitted from the light source lamp into a plurality of color components (R, G, B), a plurality of liquid crystal panels (3R, 3G, 3B) for optically modulating each color light split by the color splitting means (111a, 111b, 112 and 115),

color synthesizing means (6) for synthesizing each of the color light (R, G, B) modulated by the liquid crystal panels (3R, 3G, 3B), and projecting means (2) for projecting image light which is color-synthesized by the color synthesizing means on a screen (12) from slantly above or slantly below (Figure 5).

Sato et al. teaches the salient features of the present invention, except a polarization direction of at least one color component out of the image light irradiated on the screen: parallel to a vertical cross section of the screen; parallel to a horizontal cross section of the screen; parallel to a plane including the image light irradiated on the screen and a normal of the screen; and the polarization direction of the at least one color component is manipulated to reduce reflection on the screen and to improve brightness.

Suzuki et al. (US Patent Number 6,379,010 B1) discloses a polarization direction of at least one color component out of the image light irradiated (column 24, lines 3-5) on the screen (42): parallel to a vertical cross section (column 24, lines 11-12) of the screen (42); parallel to a horizontal cross section (Figure 1) of the screen (42); parallel to a plane including the image light irradiated on the screen (42) and a normal of the screen (column 24, lines 15-30); a retardation plane (40) for adjusting the polarization direction (column 23, lines 60-64); and the polarization direction of the at least one color component is manipulated to reduce reflection on the screen (column 1, lines 30-32; column 9, lines 1-4 and column 26, lines 50-62) and to improve brightness (column 10, lines 1-3).

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It would have been obvious to one of ordinary skill in the art at the time of the invention was made to manipulate the polarization direction disclosed by Suzuki et al. in combination with Sato et al.'s invention, for the purpose of providing a projection type display which is superior in gradation display and high in quality.

Please note that with respect to "wherein a polarization direction of at least one color component out of the image light irradiated on the screen is parallel to a vertical cross section of the screen, and the polarization direction of the at least one color component is manipulated to reduce reflection on the screen and to improve brightness", the functional language recited in the claims, claims directed to an apparatus must be distinguished from the prior art in terms of the structure rather than function and apparatus claims cover what a device is, not what a device does (see MPEP 2114). Since the prior art teaches all structural features of the claimed invention, the prior art is presumed to be capable of established the functions as recited in the claims.

5. Claims 9-10, 12, 22-23, 25, 34-35, 37 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Suzuki et al. as applied to claims 1-3, 6, 11, 13-19, 24, 26-28, 31, 36 and 38 above, and further in view of Shibazaki.

Sato et al. (US Patent Number 5,097,323) in combination with Suzuki et al. (US Patent Number 6,379,010 B1) disclose the claimed structure except the plurality of aspherical mirrors functioning as a lens, a Fresnel lens, and a lenticular lens, where the

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relation $i - \min < \alpha < i - \max$ is satisfied. However, Sato et al. discloses a plurality of mirrors (15, 16) and a transmission type screen (12) comprising a lenticular lens (13).

Shibazaki (US Patent Number 5,477,394) teaches the use of aspherical mirrors functioning as a lens (column 5, lines 63-67 and column 6, lines 1-8), a Fresnel lens (18), and a lenticular lens (19), where the relation $i - \min < \alpha < i - \max$ is satisfied (see Figure 4; wherein α is the angle between the normal of the screen and the light rays).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize such features (i.e. the aspherical mirrors functioning as a lens in a rear projection display device) disclosed by Shibazaki, in combination with Sato et al. and Suzuki et al's invention, for the purpose of reducing the size of said projector.

Allowable Subject Matter

6. Claims 39-41 are allowed.
7. Claims 4-5, 7-8, 17-18, 20-21, 29-30 and 32-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter:

A rear projection display device wherein polarization direction adjusting means is provided for adjusting a polarization direction of at least the green component out of the

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image light synthesized by the color synthesizing means (claim 4); polarization direction adjusting means is provided for selectively adjusting a color component, of which a polarization direction is orthogonal with the vertical cross section of the screen (claim 7); polarization direction adjusting means is provided for adjusting a polarization direction of at least the green component out of the image light irradiated on the screen (claims 17-29); polarization direction adjusting means is provided for selectively adjusting a color component, of which polarization direction is orthogonal with the horizontal cross section of the screen (claim 20); polarization direction adjusting means is provided for selectively adjusting a color components, of which a polarization direction is orthogonal with the plane including the image light irradiated on the screen and the normal of the screen (claim 32) and polarization direction adjusting means for selectively adjusting a color component which is an S-polarized component to a surface of a screen on which image light is irradiated, out of the image light synthesized by the color synthesizing means so that the S-polarized component becomes a P-polarized component to the surface of the screen on which the image light is irradiated (claim 39), cannot be made inherent or obvious by the prior art of record.

Response to Arguments

9. Applicant's arguments with respect to claims 1-38 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hashizume (US Patent Number 6,089,718) discloses a projection display device wherein all light polarized in random directions is converted into s-polarized light and emitted by a polarizing conversion element.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (571) 272-

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2114. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Magda Cruz
Patent Examiner
January 24, 2005

RODNEY FULLER
PRIMARY EXAMINER
